

# Preliminary Assessment for January 2009 Flood Magnitudes for King County Watersheds

By Jeff Burkey and Kyle Comanor, P.E.

King County's Science and Technical Support Section, along with the River and Floodplain Management Section, have completed a preliminary Assessment of the 2009 January flood events. The technical assessment focus was to characterize the January 2009 storm event for rivers with flow gaging locations wholly or partially in King County. The rivers included in the assessment were the White, Green, Cedar, Sammamish, Snoqualmie, Tolt and Skykomish rivers, and Issaquah Creek. Similar assessments will be implemented following future flood events.

The Cedar River also experienced flow rates high enough to become the second-largest event on record at Renton which was estimated to be a 36-year return period. The rest of the evaluated gage stations were well below 20-year return period estimates with all but two below 10-year estimates. Despite the varied nature of the flooding, all but four gages had floods within the top five of recorded events.

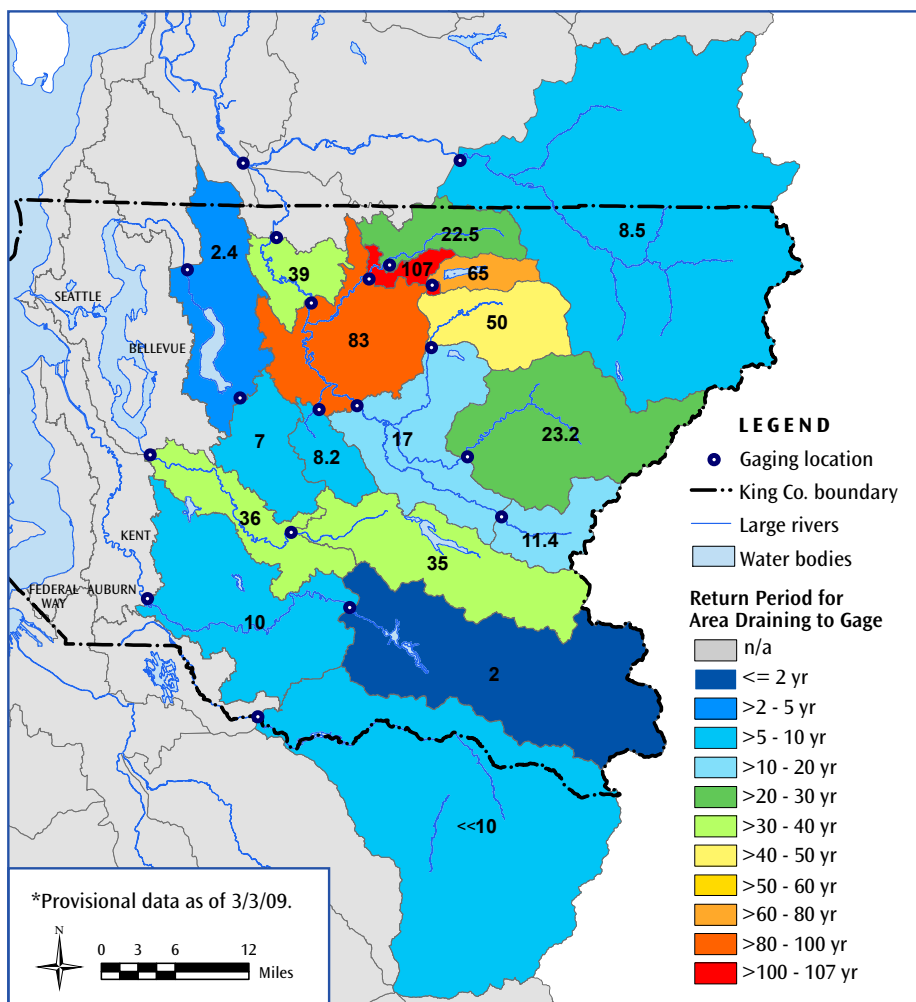
The full technical report will be online by mid first quarter of 2010. If you have any questions feel free to contact Jeff Burkey via e-mail [jeff.burkey@kingcounty.gov](mailto:jeff.burkey@kingcounty.gov)

## Flood Event Summary

Flood frequency return periods are another way of estimating probabilities of a given size of a flood event to occur. For example, a 100-year flood event is defined as there is a one in 100 chance (1 percent) that a flood of that magnitude or greater can occur in any given year. Thus, a 100-year flood event can occur more frequently than once every 100 years, but on average, over a very long period of time, a flood of that magnitude will occur once every 100 years. (See map on front page.)

During the January 2009 event, all rivers and streams that have a designated flood stage or flood phase were either multiple feet above flood stage and/or at Phase III or greater. The Green and White rivers and Issaquah Creek rose to Phase III flooding, while the Snoqualmie, Tolt and Cedar rivers surpassed the threshold for Phase IV flooding. Flooding in the lower Tolt river for January 2009, was estimated to be larger than a 100-year flood event.

Some of the most-severe flooding in January 2009 occurred in the Tolt and Snoqualmie river basins, where peak flow rates were either the highest or second-highest events on record. Based on available historical data from the U.S. Geological Survey (USGS), this translated into flood frequency estimates ranging from 50-year to 107-year return periods for the events of record, and 22-year to 65-year return periods for the gage stations with the January 2009 storm as the second-highest event.



**SUMMARY OF PROVISIONAL FLOOD FREQUENCY ESTIMATES\***  
Shown as Gage Drainage Areas for January 7-9, 2009 Event

## About King County's Sci FYI

**Published by:**



**King County**

Department of Natural Resources and Parks  
Water and Land Resources Division  
**Science and Technical Support Section**

**Section Manager:** Randy Shuman

**Editor:** Doug Williams

**Contributors and Photographers:** Jeff Burkey, Terry Butler, Curtis Degasper, Kyle Comanor, P.E., Larry Jones and Ray Timm

**Designer:** Laurel Preston

**Available on the Web at:** <http://www.kingcounty.gov/environment/wlr/science-section/sci-fyi-newsletter.aspx>

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